

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. Substantially pure DNA or RNA consisting essentially of nucleotide sequence corresponding to the Apa I restriction fragment of a human erythropoietin gene.

2. The DNA or RNA of Claim 1 wherein the Apa I restriction fragment consists essentially of the nucleotide sequence of either the sense strand shown in FIGURE 1 or the complementary RNA sequence thereof.

3. The DNA or RNA sequence of Claim 1 operably linked to a second nucleic acid sequence capable of effecting expression thereof.

4. The DNA or RNA of Claim 3 wherein the second nucleic acid sequence is selected from one or more of the following: promoter sequences, enhancer sequences, polyadenylation sequences, selectable marker sequences, plasmids, viral and retroviral expression vectors, and retroviral trans-acting factors.

5. Cells containing the DNA or RNA of Claim 3.

6. Cells stably transfected with the DNA or RNA of Claim 3.

7. Cells of Claim 6 selected from the group consisting of eukaryotic cells, yeast, and bacteria.

8. Cells of Claim 7 wherein the eukaryotic cells are of kidney origin.

9. Cells of Claim 8 wherein the kidney cells are epithelial cells.

10. A method of expressing recombinant biologically active human erythropoietin comprising the steps of transfecting a host cell line with DNA, RNA, or nucleotide sequence consisting essentially of the Apa I restriction fragment of a human erythropoietin gene, contacting the transfected cells with culture medium to permit the cells to express erythropoietin, and recovering the expressed erythropoietin.

11. The method of Claim 10 wherein the Apa I restriction fragment is carried on a plasmid or virus.

12. The method of Claim 10 wherein the host cell line is selected from the group consisting of eukaryotic cells, yeast, and bacteria.

13. In a method of expressing recombinant biologically active human erythropoietin from a cell line in contact with an incubating medium, the improvement which comprises incorporating in said method a cell line capable of permitting a yield of erythropoietin in the incubating medium, said cell line having been produced by transfecting a host cell line with DNA, RNA, or nucleotide sequence consisting essentially of the Apa I restriction fragment of a human erythropoietin gene.

14. The method of expressing recombinant biologically active human erythropoietin from a cell line in contact with an incubating medium in accordance with Claim 13, wherein said cell line is capable of permitting a nominal yield of at least two million Units of erythropoietin per liter of incubating medium.

15. The method of Claim 13 wherein said Apa I restriction fragment is carried on a plasmid.

16. The method of Claim 13 wherein said Apa I restriction fragment is carried on a virus.

17. The method of Claim 13 wherein the host cell line is selected from the group consisting of eukaryotic cells, yeast, and bacteria.

